

UPC-21

Infrared Transmitter & Accessories

INSTRUCTION MANUAL



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One Year Limited Warranty



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INFRARED HEADPHONE TRANSMISSION SYSTEMS

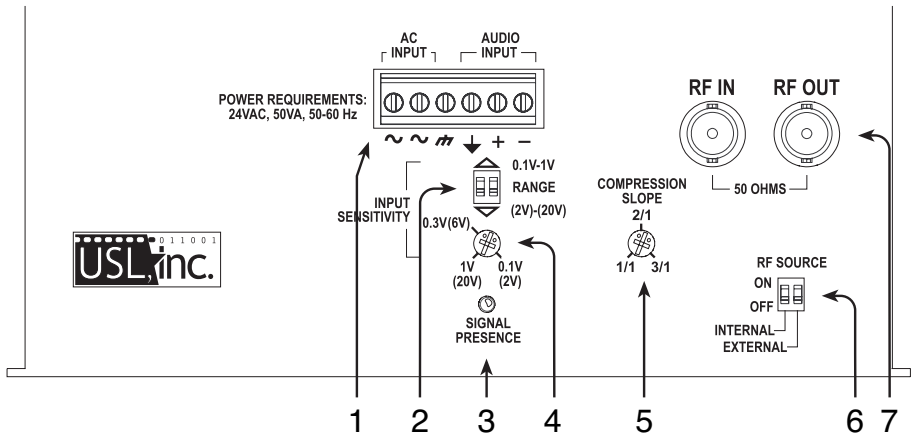
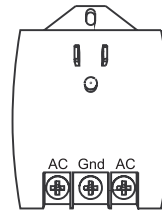
The Ultra ★Phonic Infrared HeadponeTransmission System is designed to provide intelligible, clear sound for your hearing-impaired customers.

TABLE OF CONTENTS

UPC-21 FEATURES.....	3
UPC-21 INSTALLATION.....	4
AUDIO & POWER CONNECTIONS.....	5
PRELIMINARY LEVEL SETTINGS.....	6
MOUNTING THE EMITTER.....	6
INSTALLATION USING TWO IRC-21S.....	8
FACTS ABOUT INFRARED TRANSMISSION SYSTEMS.....	9
 <i>Illustrations:</i>	
UPC FEATURES.....	3
UPC-21 AUDIO, POWER CONNECTIONS.....	5
SUMMING RESISTOR NETWORK.....	5
DIODE LIFE EXPECTANCY CHART.....	7
FRONT AND REAR MOUNTED VIEWS.....	7
INSTALLATION USING 2 IRC-21S.....	8

UPC-21 Features

IRP-20 Power Pack



1. Main Connector; consisting of the following:

- a. Pins 1 & 2: AC Power Input Terminals.

Connects to the AC terminals of the 24VAC Power Pack supplied with the IRC-21

- b. Pin 3: AC Ground Terminal.

It can be connected to the ground terminal of the 24V AC Power Pack if required by local building codes.

- c. Pin 4: Audio System Ground.

May be connected to shield of shielded-pair input cable. If other end of audio cable shield is connected to a chassis ground, this terminal may be left open.

- d. Pin 5 & 6: Audio Input Terminals.

Balanced, differential input. One side may be grounded for single ended input.

2. Input Range Selector.

With both switches in the upper position, the audio channel input level range is 0.1 to 1.0 Vrms. With both switches in the lower position, the input range is from 2 to 20 Vrms (suitable for speaker amplifier output levels).

3. Signal Presence Indicator.

Indicates proper audio level when light blinks at the peaks of the sound.

4. Audio Input level Adjustment.

Adjust input level so that only the peaks of the audio signal light the LED "Signal Presence" indicator. If the LED is on constantly, the audio level is too high and the channel is clipping.

5. Compression Slope Adjustment.

Adjusts compression from 1:1 to 3:1 with 2:1 at the approximate center of the range. Improves intelligibility of low level dialog.

6. RF Source Switch.

Selects source of IR RF modulation to be radiated by this emitter panel. The left switch feeds the local audio modulated rf to the emitter panel. The right switch connects the emitter panel to an external source, such as another IRC-21 located in another corner of the auditorium.

7. RF Input and Output BNC Connectors.

The RF Input connector accepts RF from another IRC-21 for radiation from this emitter panel. The RF output connector feeds the modulated rf output from this modulator to another panel.

UPC-21 Installation

Unpack the carton and verify that all materials are present.

There should be:

- ☐ One system manual
- ☐ One IRC-21 Emitter Panel
- ☐ One IRP-20 ac Power Pack
- ☐ One Mounting Bracket composed of 1 ea. IRBS-20 & IRBE-20
- ☐ Two 10-32 x 5/8 machine screws for attaching the emitter panel to the mounting bracket.

You will need to supply the following materials:

- ☐ A small jeweler's type flat blade screwdriver or trim pot alignment tool for adjusting the input audio levels.
- ☐ A medium flat blade screwdriver for attaching the mounting bracket.
- ☐ Shielded audio cable for connection of the IRC-21 to the program source.
- ☐ Eighteen gauge or greater; two or three conductor "zip" cord to connect the AC power pack to the emitter panel.
- ☐ Tools and hardware to attach the mounting bracket to the wall
- ☐ One IRH-501 or IRH-701 receiver.

CONNECT THE AUDIO INPUT LINE

Connect the Center channel speaker terminals to the + and - (ground) audio input terminals on the IRC-21 as in Fig C. If the center channel is bi-amped, you must construct a resistor network, as in Fig. D, that sums the high and low frequency signals, then feed the output of the network to the IRC-21 audio input. You also may connect the IRC-21 input to the output of a monitor or a processor.

CONNECT THE IRP-20 AC POWER PACK

Connect the provided IRP-20 AC Power Pack to the IRC-21 AC terminal using standard 18-gauge or greater “zip” cord. (see TABLE 1 for lengths). Make sure ther are no loose wire strands that could touch any nearby metal and short the power pack.

⚠ DO NOT SHORT THE POWER SUPPLY!

Connect the power pack to a 115 VAC 50/60 Hz outlet.

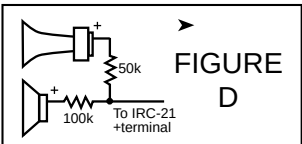
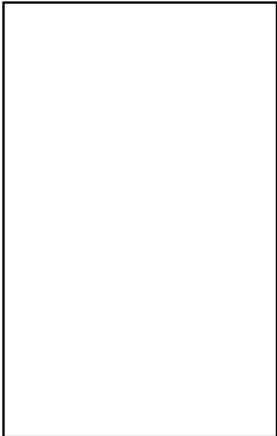
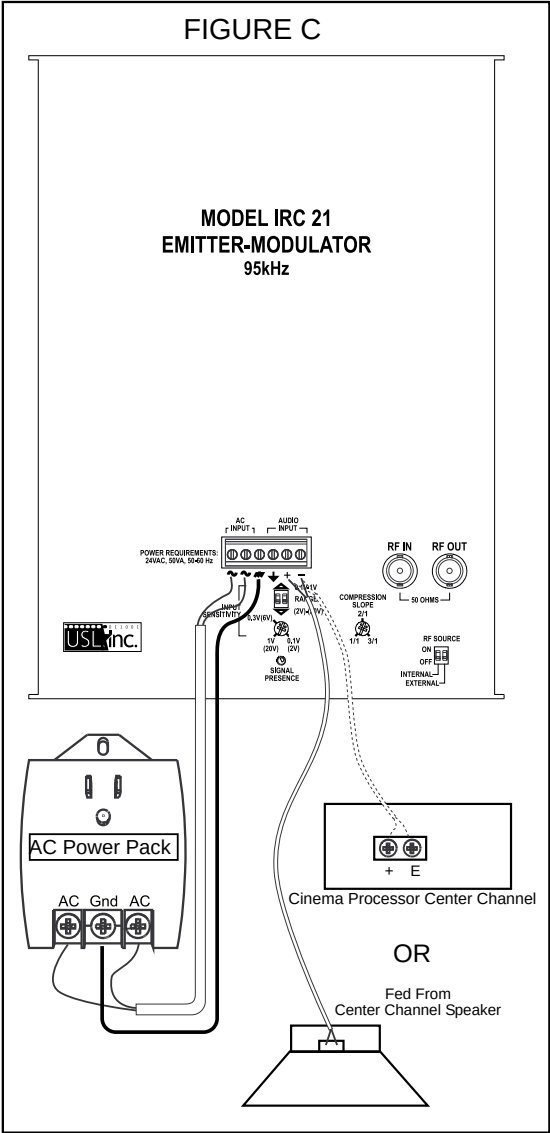


FIGURE D



q PRELIMINARY LEVEL SETTING

If the system is to be used with a cinema sound system, simply run a standard optical track 50% modulation loop in the projector (e.g., Dolby® or Ultra★Stereo®). Then adjust the IRC-21 Input Level Adjust trimpot so that as the gain is increased, the green “Signal Present” LED just comes on.

If the system is being used with other sources such as tape, then adjust the Input Level control so that a standard “0” reference level tape plays back so the “Signal Presence” LED just begins to illuminate. With normal audio signal, the LED should flash occasionally.

Note: The IRC-20 has an automatic shutoff circuit. The unit will shut itself off after an thirty-minute absence of audio signal. When the audio resumes, the panel will switch on instantly.

q Mounting the Emitter/Modulator at the front of the auditorium

(See Figures F and G) Attach the supplied mounting bracket to the wall surface and use the supplied screws to attach the bracket to the emitter. Allow free airflow around the emitter and be sure to have at least eight inches clearance from all surfaces, preferably more if at all possible. The rear panel is used as a heat sink and the heat must be allowed to dissipate. The unit should be mounted to the side of the screen/stage area, 12 to 15 feet above the audience's heads and pointed downward and into the seating area.

q Mounting the Emitter/Modulator at the rear of the auditorium

(See Figures H and J) Attach the supplied mounting bracket to the wall surface and use the supplied screws to attach the bracket to the emitter. Allow free airflow around the emitter and be sure to have at least eight inches clearance from all surfaces, preferably more if at all possible. The rear panel is used as a heat sink and the heat must be allowed to dissipate. The emitter will cover a maximum of 5500 square feet (60' X 84') and has a primary 50° ($\pm 25^\circ$) vertical and horizontal coverage angle, usually adequate for a 350-seat theatre. Within 30 feet of the emitter the horizontal dispersion angle of emission increases to over 140°. Within 18 feet of the emitter the vertical dispersion angle of emission increases to 180°. The emitter can be mounted 12 to 15 feet above the audience's heads. The unit should be pointed downward into the seated area (Fig. G, J).

CAUTION: The rear panel may get quite warm to the touch. This is normal.
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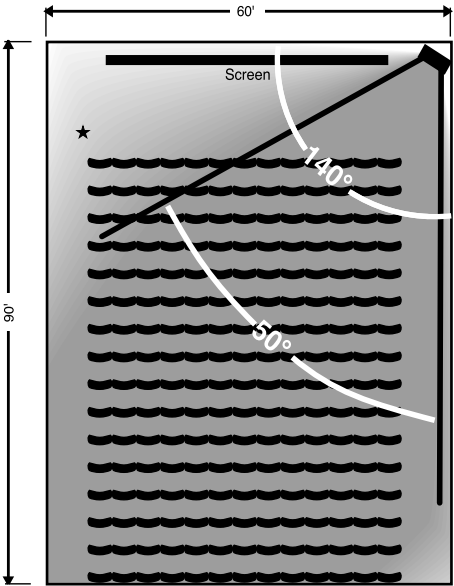


Fig. F - Front mounted emitter-top view

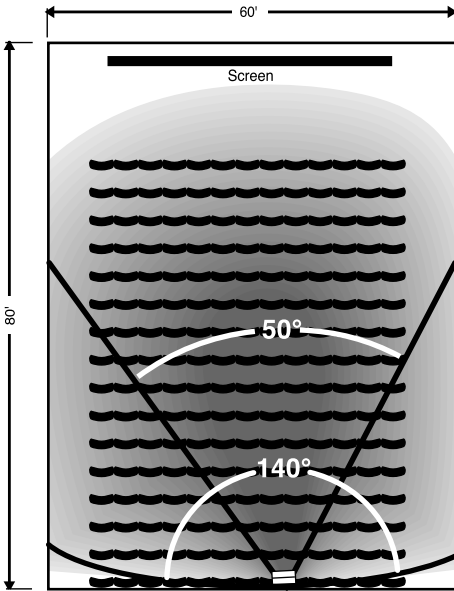
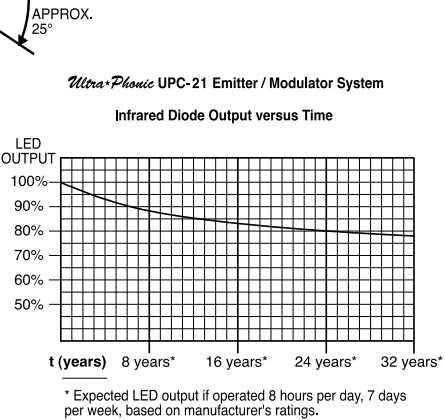


Fig. H - Rear mounted emitter-top view

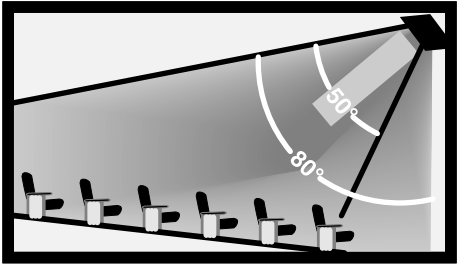


Fig. G - Front mounted emitter - side view

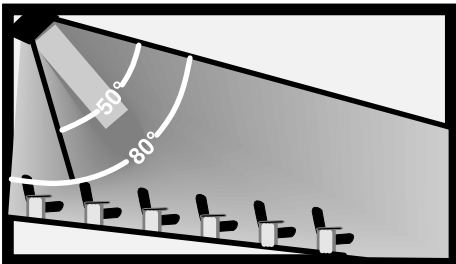


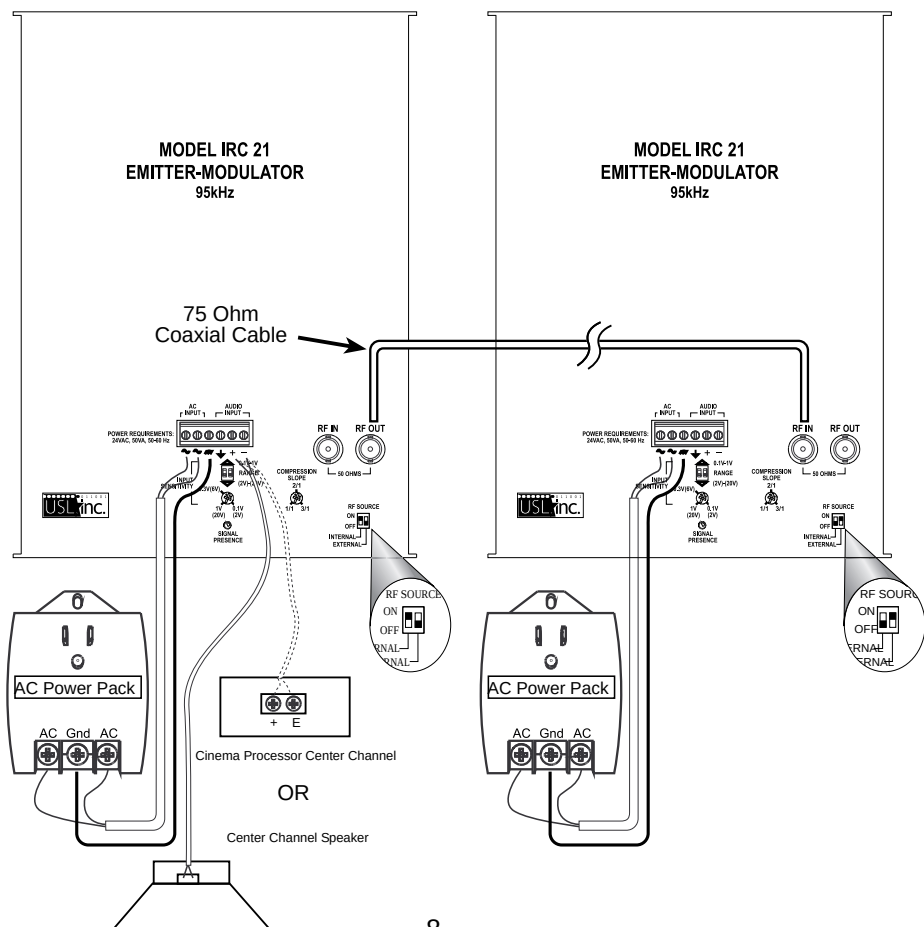
Fig. J - Rear mounted emitter - side view

AN INSTALLATION USING TWO IRC-21S

Connect an IRP-20 power pack to each of the IRC-21s. From the unit receiving the audio signal from a source, connect the RF OUT terminal to the RF IN terminal of the second IRC-21 utilizing 75Ω Coaxial Cable. A power pack **MUST** be used for each IRC-21 so configured.

There is, theoretically, no limit to the number of IRC-21s from a single source that you may connect in this way.

Within reason, distances between units is unlimited.



FACTS ABOUT INFRARED TRANSMISSION SYSTEMS

The UPC-21 Infrared Transmission Systems use light emitting diodes frequency modulated at 95kHz, the international standard.

The modulated waves radiate from the emitter panels primarily in straight lines. Depending on the lightness of the wall color, some of this energy may be reflected and bounce around the room. Infrared energy does not penetrate walls. The modulated waves remain within the room where the emitter is placed. This feature makes it perfect for use in multiplex theatre units and for use in hotel and convention center meeting rooms and auditoriums. Additionally, this characteristic of infrared transmission makes it ideal for meetings requiring security of the signal.

USL, Inc. provides the following 95kHz headsets:

IRH-501 – an over-the-head receiver designed with a 360° pickup.

IRH-701 – an under-the-chin receiver with a 180° pickup.